

Applicant: Thomas Jung
Serial No.: 09/743,545
Amendment dated: July 7, 2004
Reply to Office Action dated: March 12, 2004

LISTING OF CLAIMS:

Claims 1-19 have been previously cancelled.

20. **(Currently amended)** A device for the plasma treatment of objects
in a vacuum comprising;

 a box-shaped structure of an electrically conductive material defining
a vacuum chamber to which a vacuum may be applied,

 a support for supporting and electrically insulating the objects from
the surrounding box-shaped structure,

 said box-shaped structure having inner walls completely surrounding
~~[and exposed to]~~ said support on all sides and including at least one opening that can be
opened for ingress and egress of objects and closed whereby an object to be coated is moved
through said opening and placed on said support out of direct contact with said inner walls of
said box-shaped structure,

 said box-shaped structure including a working gas inlet for supplying
a working gas and a working gas outlet for discharging the working gas,

 said box-shaped structure including an energy opening for
introducing energy to create the plasma,

all of said inner walls of said box-shaped structure having an
electrical charge opposite to the charge of the plasma whereby all of said inner walls of the
box-shaped structure ~~[[acts]]~~ act as an electrode completely surrounding ~~[and exposed to]~~ the
support whereby objects on the support are out of direct contact ~~[[exposed]]~~ on all sides to
the inner walls ~~[electrically conductive material]~~ of the box-shaped structure,

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all of said inner walls of said box shaped structure presenting a coating material for removal from the structure and deposition on the objects.

21. **(Previously presented)** A device as set forth in claim 20 including an energy electrode extending into said chamber through said energy opening and electrically insulated from said box-shaped structure for introducing the electrical energy to generate the plasma.

22. **(Previously presented)** A device as set forth in claim 20 including a microwave generator for introducing microwaves through said energy opening to generate the plasma in said vacuum chamber.

23. **(Previously presented)** A device as set forth in claim 20 wherein said support provides a predetermined electrical potential to be applied to the objects.

Claim 24. **(Cancelled)**

25. **(Previously presented)** A device as set forth in claim 20 including a cooling system for cooling the box-shaped structure.

26. **(Previously presented)** A device as set forth in claim 20 wherein said vacuum chamber has a width that is at least one and two tenths (1.2) times greater than the width in the same direction of said support.

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27. **(Previously presented)** A device as set forth in claim 20 wherein said gas outlet has a cross-sectional area greater than the sum of the cross-sectional areas of said gas inlet and said energy opening.

28. **(Previously presented)** A device as set forth in claim 20 wherein said box-shaped structure comprises at least in part a metal.

29. **(Currently amended)** A method for the plasma treatment of objects comprising the steps of;

supporting objects in a vacuum chamber defined by an electrically conductive box-shaped structure having inner walls completely surrounding and spaced from the objects on all sides for electrically insulating the objects from the inner walls of the box-shaped structure,

applying a vacuum to the vacuum chamber surrounding the objects,

generating a plasma in the vacuum chamber having an electrical potential and applying an opposite electrical potential to all of the inner walls of the entire box-shaped structure, ~~[to thereby exposing the objects on all sides to the electrically conductive box-shaped structure]~~

placing a coating on all of the inner walls said box-shaped structure in the vacuum chamber defined thereby, and

removing the coating from all of the inner walls of the box-shaped structure and depositing the coating material on the objects.

Claim 30. **(Cancelled)**

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31. **(Previously presented)** A method as set forth in claim 29 including negatively charging the box-shaped structure.

32. **(Cancelled)**

33. **(Previously presented)** A method as set forth in claim 29 including supplying a reactive gas to the vacuum chamber while generating the plasma.

34. **(Previously presented)** A method as set forth in claim 29 including introducing a powder into the vacuum chamber and depositing the powder material into the objects.

35. **(Previously presented)** A method as set forth in claim 29 including establishing an electrical potential difference between the entire box-shaped structure and the plasma in the range of 100 to 1000 volts.

36. **(Previously presented)** A method as set forth in claim 29 including introducing a working gas at the rate of 10 to 1000 cubic centimeters per minute.

37. **(Previously presented)** A method as set forth in claim 29 including establishing an electrical potential difference below 200 volts between the box-shaped structure and the plasma.

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38. **(Previously presented)** A method as set forth in claim 29 including establishing a hollow cathode discharge in the vacuum chamber.

39. **(Cancelled)**